DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027230
Date Inspected: 22-Feb-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1730
Location: Job Site

CWI Name:	Steve Jensen			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS OBG

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 13 meters diaphragm weld joint number W109, ABF welder Jin Pei Wang was observed continuing to perform 1G Shielded Metal Arc Welding (SMAW) welding root pass on the 45mm thick outer West diaphragm plate to 60mm shear plate Partial Joint Penetration (PJP) T-joint. The 45mm diaphragm has a 45 degrees bevel with an average root opening of 3.125mm with partial backing bar. The alignment for weld number W109 was -8.5mm minimum to -12mm maximum. This misalignment which was previously brought to the attention of the ABF QC, and a remedial solution has been put forward by QC through Mr. Jim Bowers and awaiting approval according to QC. The welder was noted using 3/16” diameter E7018H4R implementing Welding Procedure Specification (WPS) ABF-WPS-D15-1050A with measured working current of 228 amps. Prior welding, the welder has preheated the plates to required preheat temperature of more than 150 degrees Fahrenheit using a propylene gas torch. During welding, ABF QC Steve Jensen was noted monitoring the welder. During the shift, root pass SMAW welding on the T-joint mentioned above was completed.

After the completion of W109, the welder has moved to PJP T-joint W121 between the 45mm thick inner West diaphragm and 70mm thick South Tower Shaft skin plate ‘A’. The 45mm diaphragm has a 45 degrees bevel with an average root opening of 3.35mm without backing bar. The welder has preheated the weld joint to the required 225 degrees Fahrenheit using the propylene gas torch but did not use the heater blanker to maintain the preheat as required. This was brought to the attention of ABF QC Steve Jensen who also talked and asked the ABF

Superintendent Dan Ieraci to comply with the requirements. Mr. Ieraci informed QC that ABF QC Manager Jim Bowers instruction was to use the propylene gas torch to preheat without the need to maintain and perform the post weld heat treatment. The welder performed and completed the root pass welding using the same process and procedure mentioned above. There was no post weld heat treatment or holding of the required preheat to three more hours performed on the weld joint after welding. Due to this infraction, an incident report was generated. The welder has also started the root pass at weld joint location (W128) between the 45mm thick North diaphragm plate to North Tower shaft skin plate 'E' but was not completed at the end of the shift.

At Tower Base 13 meters diaphragm weld joint number W108, ABF welder Wai Kitlai was observed continuing to perform 1G Shielded Metal Arc Welding (SMAW) welding root pass on the 45mm thick inner West diaphragm plate to 60mm shear plate PJP T-joint. The 45mm diaphragm has a 45 degrees bevel with an average root opening of 12mm, with backing bar. The alignment for weld number W108 was noted -5mm minimum to +11.5mm maximum. This misalignment which was previously brought to the attention of the ABF QC, and a remedial solution has been put forward by QC through Mr. Jim Bowers and awaiting approval according to QC. The welder was noted using 3/16" diameter E7018H4R implementing Welding Procedure Specification (WPS) ABF-WPS-D15-1050A with measured working current of 230 amps. Prior welding, the welder has preheated the plates to required preheat temperature of more than 150 degrees Fahrenheit using a propylene gas torch. During welding, ABF QC Steve Jensen was noted monitoring the welder. During the shift, root pass SMAW welding on the T-joint mentioned above was completed.

After the completion of W108, the welder has moved to PJP T-joint W122 between the 45mm thick inner West diaphragm and 70mm thick West Tower Shaft skin plate 'A'. The 45mm diaphragm has a 45 degrees bevel with an average root opening of 6.4mm without backing bar. The welder has preheated the weld joint to the required 225 degrees Fahrenheit using the propylene gas torch but did not use the heater blanker to maintain the preheat as required. The welder performed and completed the root pass welding using the same process and procedure mentioned above. There was no post weld heat treatment or holding of the required preheat to three more hours performed on the weld joint after welding. Same infraction was noted and it was included in the incident report that was generated. The welder has also started the root pass at weld joint location (W127) between the 45mm thick North diaphragm plate to West Tower shaft skin plate 'E' but was not completed at the end of the shift.

At Tower Base 9 meters diaphragm, fit up/tack welding of drop in plates at outer West diaphragm was noted continuing. ABF welder Luo Xiao Hua was observed performing tack welding the 45mm drop ins to 60mm thick shear plate using Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode. The plates were preheated to required temperature of 150 degrees Fahrenheit using propylene gas torch prior welding. During the tack welding, ABF QC Steve Jensen was noted monitoring the parameters of the welder. At the end of the shift, fit up/tack welding of two more drop ins for the outer West diaphragm was completed.

At 9 meters South diaphragm, ABF welder Han Wen Yu was also observed performing tack welding/fit up of diaphragm drop ins. The welder was noted using the same process SMAW with 1/8" diameter E7018H4R electrode. During the tack welding, ABF QC Steve Jensen was noted monitoring the parameters of the welder. At the end of the shift, fit up/tack welding of four drop ins for the South diaphragm was completed.

WELDING INSPECTION REPORT

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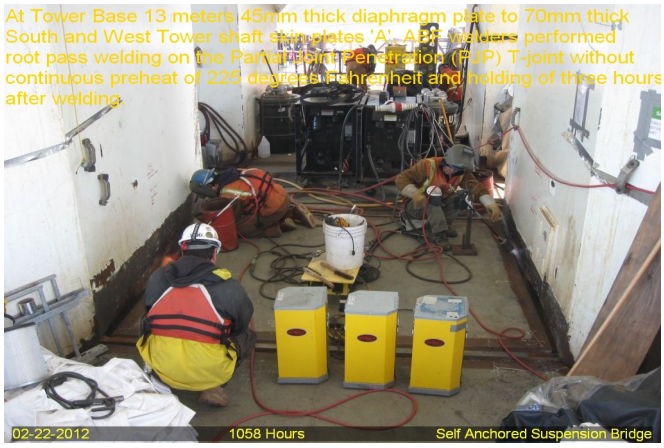

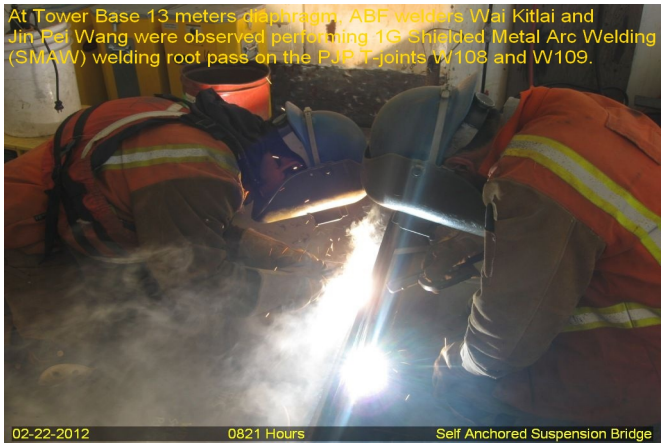

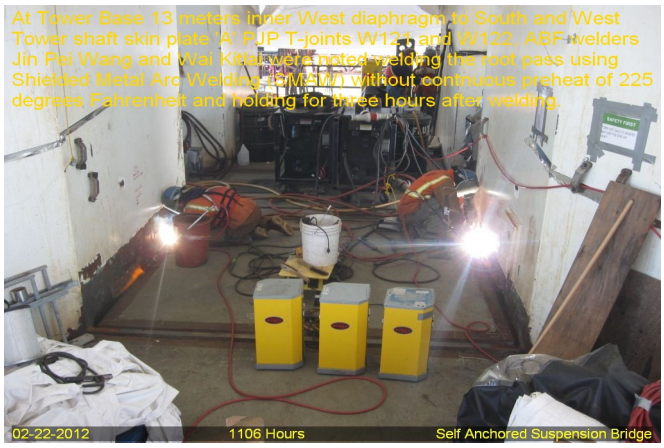

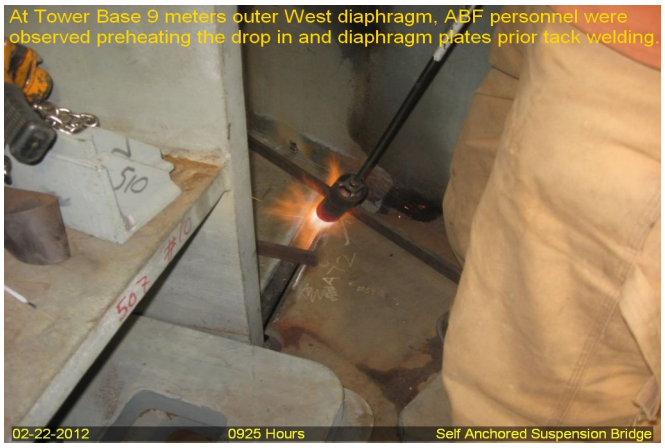

Summary of Conversations:

No significant conversation ocurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer